APPENDIX C

DIRECT FIRE PLANNING AND CONTROL

Suppressing or destroying the enemy with direct fires is fundamental to success in close combat. Effective direct fires are the unique contribution of maneuver forces to the combined arms team. Because fire and movement are complementary components of maneuver, the antiarmor company commander (or platoon leader) must be able to effectively plan for and mass the direct fires of all available resources at critical locations and times to be successful on the battlefield. Effective and efficient fire control requires the unit to acquire the enemy rapidly and mass the effects of direct fires to achieve decisive results in the close fight.

Section I. PRINCIPLES OF DIRECT FIRE CONTROL

When planning and executing direct fires, the commander and subordinate leaders must know how to apply several fundamental principles. The purpose of these direct fire control principles is not to restrict the actions of subordinates but to help the unit accomplish the primary goal of any direct fire engagement: to eliminate the enemy by acquiring first and shooting first. Applied correctly, these principles give subordinates the freedom to respond rapidly upon acquisition of the enemy. This discussion focuses on the following principles:

- Mass the effects of fire.
- Destroy the greatest threat first.
- Avoid target overkill.
- Employ the best weapon for the target.
- Minimize friendly exposure.
- Prevent fratricide.
- Plan for extreme limited visibility conditions.

C-1. MASS THE EFFECTS OF FIRE

The antiarmor company (or platoon) must mass its direct fires to achieve decisive results. Massing entails focusing direct fires at critical points and distributing the effects. Random application of fires is unlikely to have a decisive effect. For example, concentrating the unit's direct fires at a single target may ensure its destruction or suppression; however, that fire control option will fail to achieve the decisive effect on the enemy formation or position.

C-2. DESTROY THE GREATEST THREAT FIRST

The order in which the antiarmor company (or platoon) engages enemy forces is in direct relation to the danger these forces present. The threat posed by the enemy depends on his weapons, range, and positioning. Presented with multiple targets, a unit must initially concentrate direct fires to destroy the greatest threat, and then distribute fires over the remainder of the enemy force.

C-3. AVOID TARGET OVERKILL

Use only the amount of fire required to achieve necessary effects. Target overkill wastes ammunition and is not tactically sound. To the other extreme, the unit cannot have every weapon system engage a different target because the requirement to destroy the greatest threats first remains paramount.

C-4. EMPLOY THE BEST WEAPON FOR THE TARGET

Using the appropriate weapon system for the target increases the probability of rapid enemy destruction or suppression; at the same time, it conserves ammunition. The antiarmor company (or platoon) has many weapon systems (TOW, M2, or MK19) with which to engage the enemy. Target type, range, and exposure are key factors in determining the weapon system and ammunition that should be employed, as are weapon system and ammunition availability and desired target effects. The antiarmor company commander (or platoon leader) arrays his forces based on the terrain, enemy, and desired effects of all of his available direct fire weapon systems. As an example, when a light infantry battalion antiarmor platoon leader expects an enemy dismounted assault in restricted terrain, he would employ MK19 and M2 in lieu of the TOW, taking advantage of their ability to engage numerous, fast moving dismounted targets. (Refer to Appendix E, TOW Employment in Restricted Terrain.)

C-5. MINIMIZE FRIENDLY EXPOSURE

Units increase their survivability by exposing themselves to the enemy only to the extent necessary to engage him effectively. Natural or manmade defilade provides the best cover from ATGMs and other large caliber direct fire munitions. Dismounted antiarmor squads and vehicles (HMMWV or ICV) minimize their exposure by constantly seeking effective available cover, attempting to engage the enemy from the flank, remaining dispersed, firing from multiple positions, and limiting engagement times.

C-6. PREVENT FRATRICIDE

The antiarmor company commander (or platoon leader) must be proactive in reducing the risk of fratricide and noncombatant casualties. He has numerous tools to assist him in this effort: identification training for combat vehicles and aircraft, the unit's weapons safety posture, the weapons control status, and recognition markings. (Additionally, the SBCT antiarmor company has friendly information embedded within FBCB2). Knowledge and employment of applicable ROE are the primary means of preventing noncombatant casualties. (Refer to Appendix B, Risk Management and Fratricide Avoidance.)

C-7. PLAN FOR EXTREME LIMITED VISIBILITY CONDITIONS

At night, limited visibility fire control equipment enables the antiarmor company (or platoon) to engage enemy forces at nearly the same ranges that are applicable during the day. Obscurants such as dense fog, heavy rain, heavy smoke, and blowing sand, however, can reduce the capabilities of thermal and infrared equipment. Therefore, the company commander (or platoon leader) should develop contingencies for such extreme limited visibility conditions. Typically, firing positions, whether offensive or defensive, must be adjusted closer to the area or point where the commander intends to focus fires. Another

alternative is the use of visual or IR illumination when there is insufficient ambient light for passive light intensification devices.

C-8. DEVELOP CONTINGENCIES FOR DIMINISHED CAPABILITIES

Leaders initially develop plans based on their units' maximum capabilities; they make backup plans for implementation in the event of casualties, weapon damage or failure, or diminished capabilities to gather and share information. While leaders cannot anticipate or plan for every situation, they should develop plans for what they view as the most probable occurrences. Building redundancy into these plans, such as having two weapon systems observe the same sector, is an invaluable asset when the situation (and the number of available weapon systems) permits. Designating alternate sectors of fire provides a means of shifting fires if adjacent elements become unable to fire.

Section II. FIRE CONTROL PROCESS

To bring direct fires against an enemy force successfully, commanders and leaders must continuously apply the four steps of the fire control process. At the heart of this process are two critical actions: rapid, accurate target acquisition and the massing of fires to achieve decisive effects on the target. Target acquisition is the detection, identification, and location of a target in sufficient detail to permit the effective employment of weapons. Massing entails focusing fires at critical points and then distributing the fires for optimum effect. The four steps are--

- Identify probable enemy locations and determine the enemy scheme of maneuver.
- Determine where and how to mass (focus and distribute) fire effects.
- Orient forces to speed target acquisition.
- Shift fires to refocus or redistribute their effects.

C-9. IDENTIFY PROBABLE ENEMY LOCATIONS AND DETERMINE THE ENEMY SCHEME OF MANEUVER

The antiarmor company commander (or platoon leader) plans and executes direct fires based on his analysis of the factors of METT-TC. Essential parts of this are his analyses of the terrain and the enemy force. These analyses aid him in visualizing how the enemy will attack or defend a particular piece of terrain. A defending enemy's defensive position or an attacking enemy's support position is normally driven by terrain. Typically, there are limited points on a piece of terrain that provide both good fields of fire and adequate cover for a defender. Similarly, an attacking enemy will have only a limited selection of avenues of approach that provide adequate cover and concealment. The company commander's (or platoon leader's) understanding of the effects of a specific piece of terrain on maneuver will assist him in identifying probable enemy locations and likely avenues of approach both before and during the fight. Figure C-1, page C-4, illustrates an antiarmor company commander's analysis of enemy locations and scheme of maneuver; he may use any or all of the following products or techniques in developing and updating the analysis:

- A SITEMP provided by his higher headquarters.
- A SPOTREP or contact report on enemy locations and activities.
- Reconnaissance of the AO.

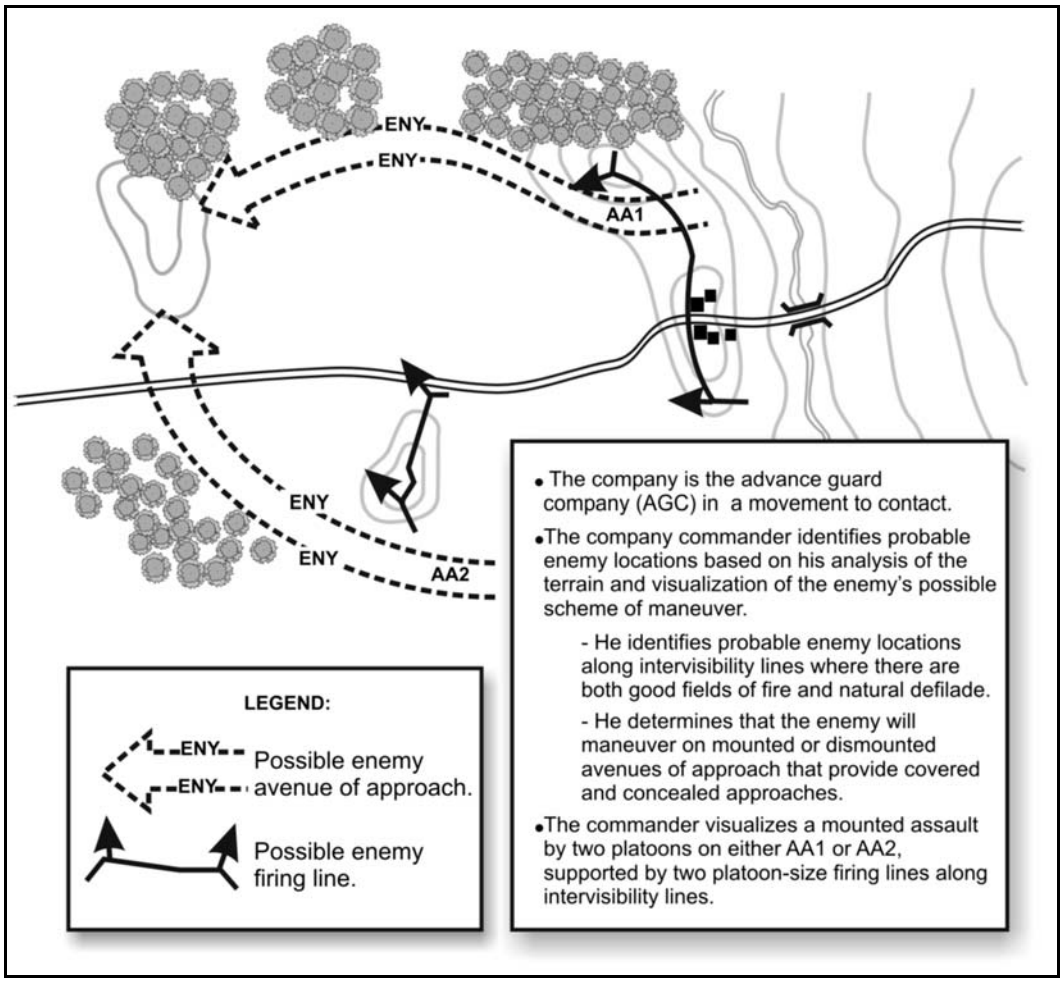

Figure C-1. Example of identifying probable enemy locations and determining enemy scheme of maneuver.

C-10. DETERMINE WHERE AND HOW TO MASS FIRES

To achieve decisive effects the antiarmor company (or platoon) must mass direct fires. Effective massing requires the company commander (or platoon leader) to focus the fires of subordinate elements and to distribute the effects of those fires. Based on his analysis and his concept of the operation, he identifies points where he wants to focus or must focus the unit's direct fires. Most often, he has identified these locations as probable enemy positions or points along likely enemy avenues of approach where the unit can mass direct fires. Because the subordinate units initially may not be oriented on the point where the company commander wants to mass direct fires, he may issue a fire command to focus the direct fires. At the same time, he must use direct fire control measures to effectively distribute the direct fires of his subordinate elements, which are now focused on the same point. Figure C-2 illustrates how a commander masses fires against the enemy.

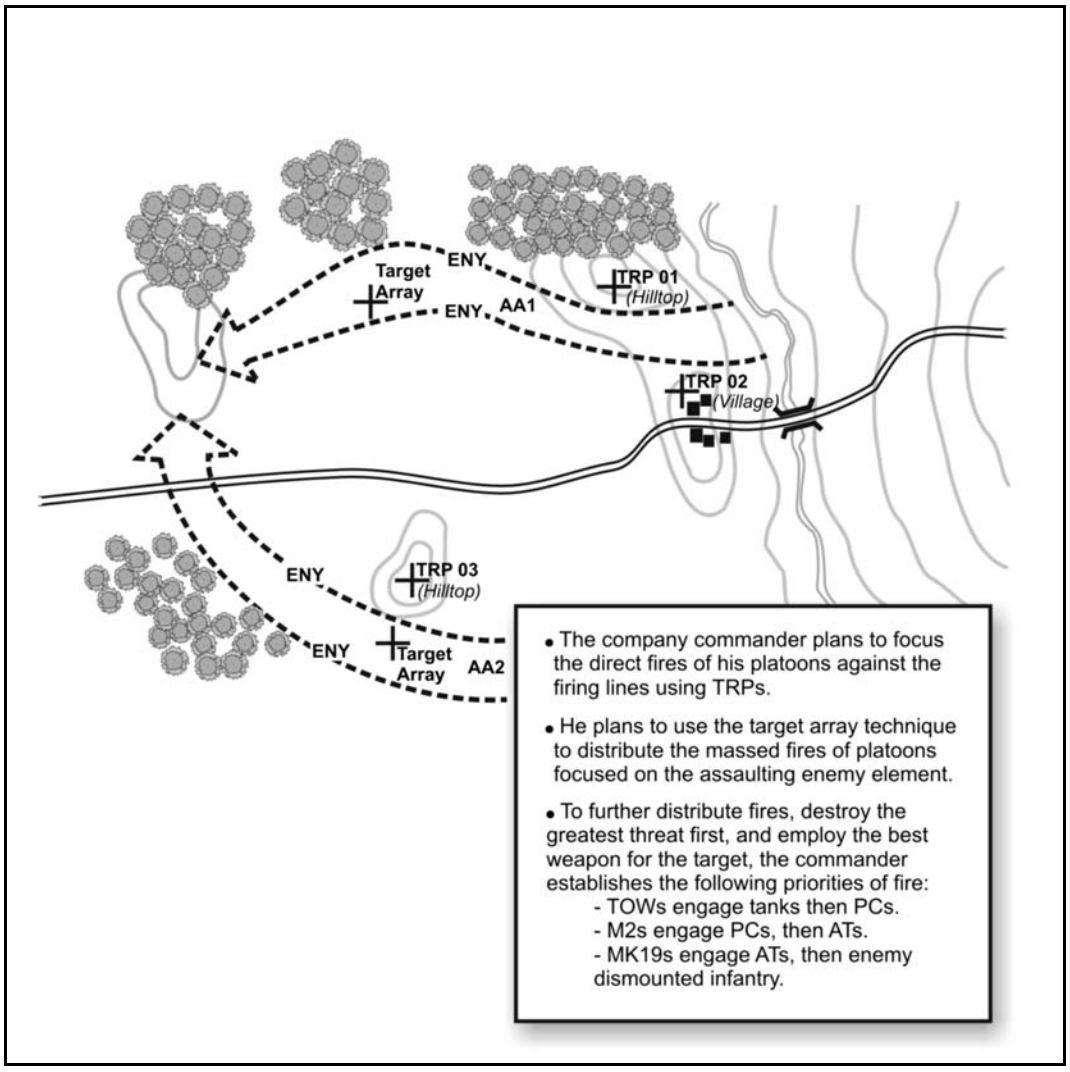

Figure C-2. Example of determining where and how to mass (focus and distribute) fire effects to kill the enemy.

C-11. ORIENT FORCES TO SPEED TARGET ACQUISITION

To engage the enemy with direct fires effectively, the antiarmor company (or platoon) must rapidly and accurately acquire enemy elements. Orienting the unit on probable enemy locations and on likely enemy avenues of approach speeds target acquisition. Conversely, failure to orient the unit results in slower acquisition, which greatly increases the likelihood that enemy forces will be able to engage first. The clock direction orientation method, which is prescribed in most unit SOPs, is good for achieving all-round security; however, it does not ensure that friendly forces are most effectively oriented to detect the enemy. To achieve this critical orientation, the commander (or platoon leader) typically designates TRPs on or near a probable enemy location or avenues of approach; he orients his subordinate units using directions of fire or sectors of fire. Normally, some antiarmor squads scan the designated direction, sector, or area while others observe alternate sectors or areas to provide all-round security. In the SBCT, the antiarmor company commander receives information that enhances the COP displayed on

FBCB2. However, he may use the previously described methods to reinforce information provided by FBCB2. Figure C-3 illustrates how an antiarmor company commander orients the company for quick, effective acquisition of the enemy force.

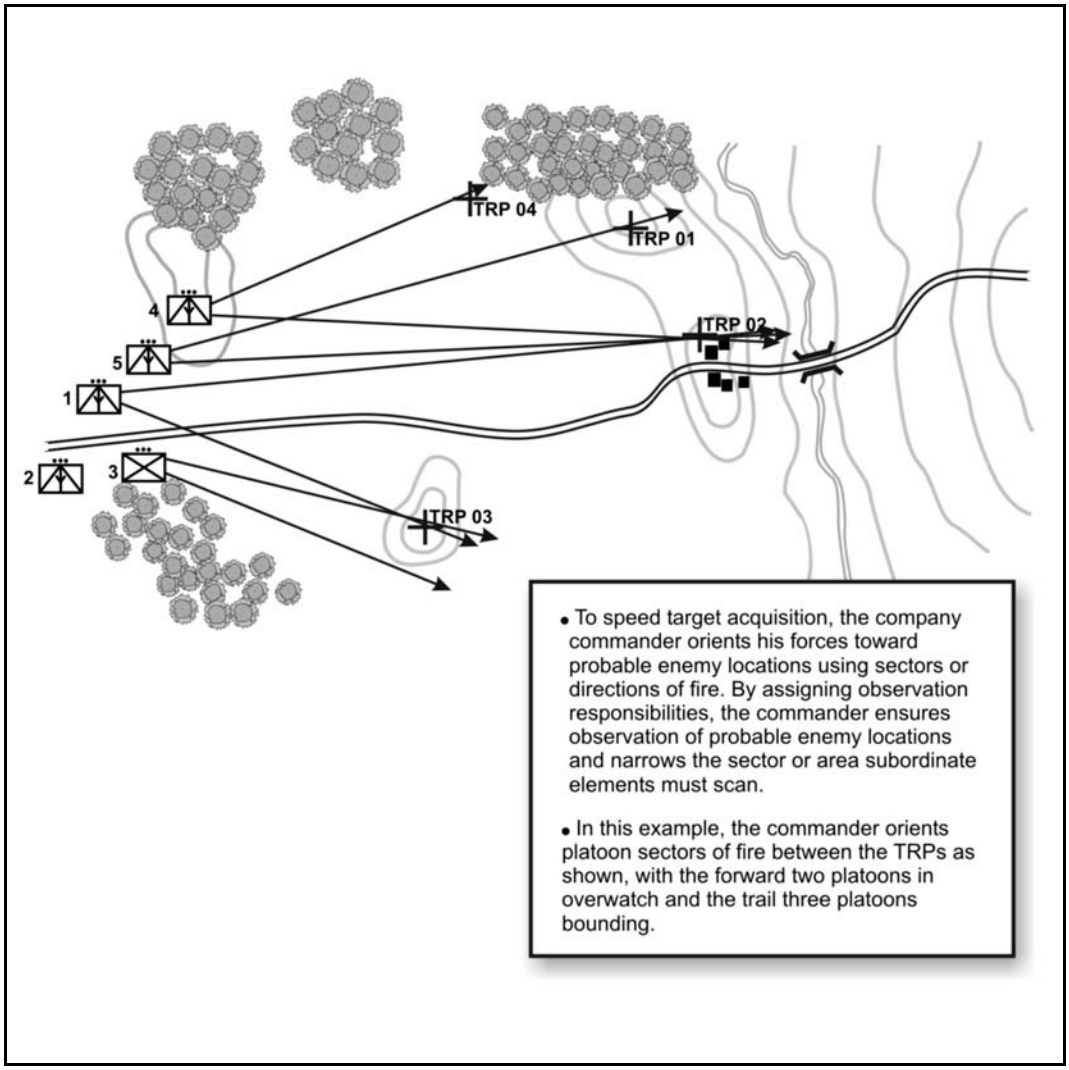

Figure C-3. Example of orienting forces to speed target acquisition.

C-12. SHIFT FIRES TO REFOCUS AND REDISTRIBUTE

As the engagement proceeds, leaders must shift direct fires to refocus and redistribute the effects based on evolving friendly and enemy information. Figure C-4 provides an example of shifting to refocus and redistribute fires. Situational understanding is an essential part of the fire control process at this point. The antiarmor company commander (or platoon leader) and his subordinate leaders apply the same techniques and considerations, including fire control measures, which they used earlier to focus and distribute fires. A variety of situations will dictate shifting of fires, including the following:

- Appearance of an enemy force posing a greater threat than the one currently being engaged.
- Extensive destruction of the enemy force being engaged, creating the possibility of target overkill.
- Destruction of friendly elements that are engaging the enemy force.
- Change in the ammunition status of friendly elements that are engaging the enemy force.
- Maneuver of enemy or friendly forces resulting in terrain masking.
- Increased fratricide risk as a maneuvering friendly element closes with the enemy force being engaged.

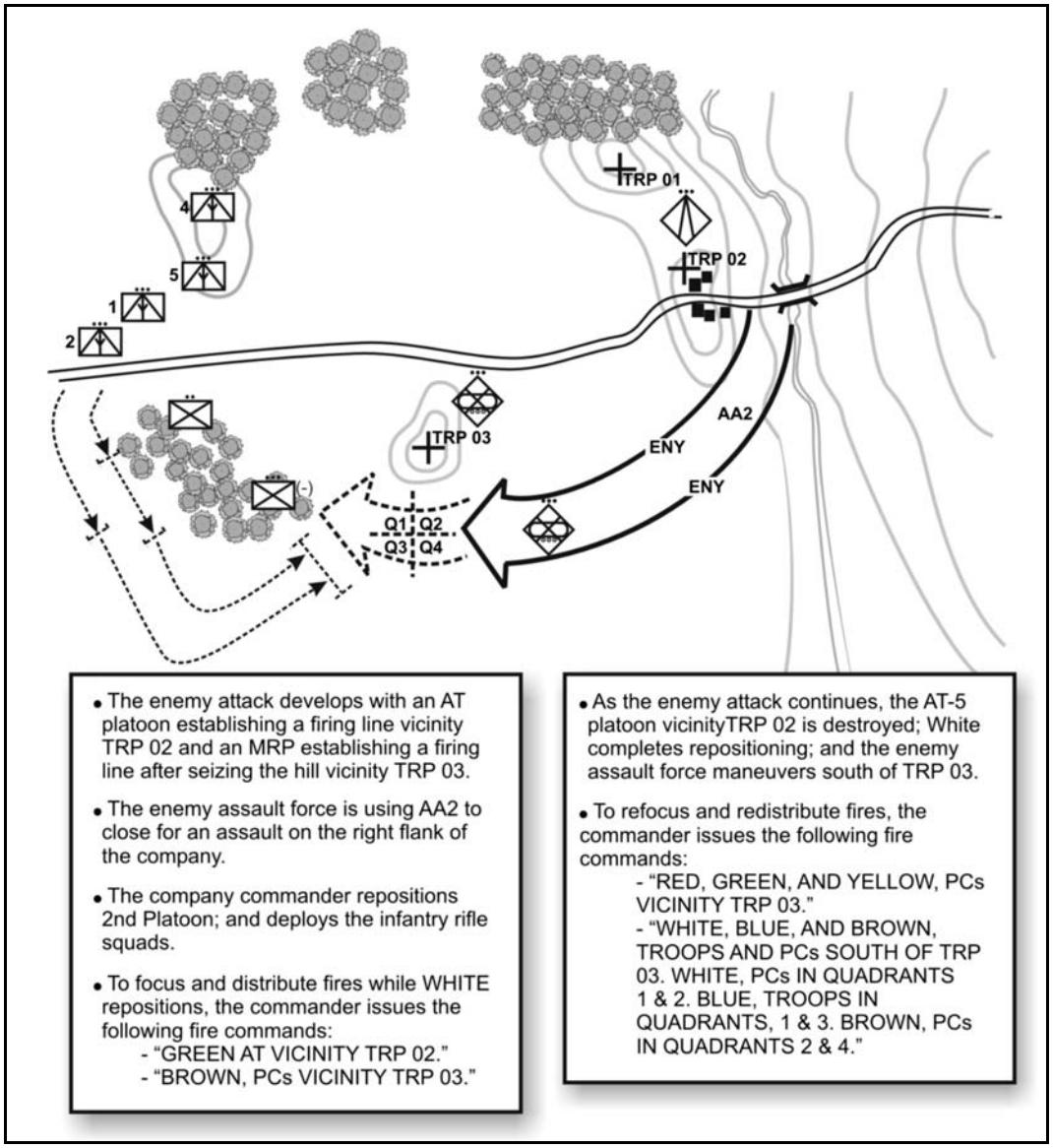

Figure C-4. Example of shifting to refocus and redistribute fires.

Section III. DIRECT FIRE PLANNING

The antiarmor company commander (or platoon leader) plans direct fires concurrent with his troop-leading procedures. Determining where and how the unit can and will mass fires is an essential step as he develops his concept of the operation.

C-13. PLANNING DIRECT FIRES

After identifying probable (or known) enemy locations, the company commander (or platoon leader) determines points or areas where he will focus his combat power. His visualization of where and how the enemy will attack or defend assists him in determining the volume of fires he must focus at particular points to have a decisive effect. In addition, if he intends to mass the direct fires of more than one subordinate unit, he must establish a means for distributing those fires effectively.

a. Based on where and how he wants to focus and distribute direct fires, the company commander (or platoon leader) can establish the weapons ready postures for his subordinate elements as well as triggers for initiating fires. He must evaluate the risk of fratricide and establish controls to avoid it. Fratricide avoidance measures include designation of recognition markings, weapons control status, and weapons safety posture. (See Appendix B for more information.)

b. Having determined where and how he will mass and distribute direct fires, the company commander (or platoon leader) must orient subordinate units so they can rapidly and accurately acquire the enemy. He must anticipate how the enemy will fight. He gains this anticipation through a detailed war game of the selected course of action to determine probable requirements for refocusing and redistributing fires and to establish other necessary controls. Also during the TLP, he plans and conducts rehearsals of direct fires (and of the fire control process) based on his analysis.

c. The company commander (or platoon leader) must continue to apply planning procedures and considerations throughout execution. He must be able to adjust direct fires based on combining the latest available information. When necessary, he must also apply effective direct fire SOPs.

C-14. DIRECT FIRE SOP

A well-rehearsed direct fire SOP enhances direct fire planning and ensures quick, predictable actions by all members of the unit. The antiarmor company commander (or platoon leader) bases the various elements of the SOP on the capabilities of his force and on anticipated conditions and situations. SOP elements should include methods of focusing fires, distributing their effects, orienting forces, and preventing fratricide. He adjusts the direct fire SOP when changes to anticipated and actual factors of METT-TC become apparent.

a. **Focusing Fires.** TRPs are a common means of focusing fires. One technique is to establish a standard respective position for TRPs in relation to friendly elements and then to consistently number the TRPs, such as from left to right. This allows leaders to quickly determine and communicate the location of the TRPs. FBCB2 enhances the SBCT antiarmor company commander's ability to focus the direct fires of his platoons. However, FBCB2 still requires some augmentation to assist him in focusing those direct fires.

b. **Distributing Fires.** Two useful means of distributing the effects of the unit's direct fires are engagement priorities and target array. Engagement priorities, by type of enemy vehicle or weapon system, are assigned for each type of friendly weapon system. The target array technique can assist in distribution by assigning specific friendly elements to engage enemy elements of approximately similar capabilities. The following are example of SOP elements for distributing the fires of an antiarmor company:

- MK19s engage antitank weapons first, then troops.
- M2s engage medium-armored vehicles first, then trucks.
- TOWs engage tanks first, then other armored vehicles.

c. **Orienting Forces.** A standard means of orienting friendly forces is to assign a primary direction of fire, using a TRP, to orient each subordinate element on a probable (or known) enemy position or likely avenue of approach. To provide all-round security, the SOP can supplement the primary direction of fire with sectors using a friendly-based quadrant. The following example of SOP elements for an antiarmor company illustrate the use of these techniques:

- The lead platoon's primary direction of fire is TRP 2 (center) until otherwise specified; the platoon is responsible for the front two quadrants.
- The left flank platoon's primary direction of fire is TRP 1 (left) until otherwise specified; the platoon is responsible for the left two friendly quadrants (overlapping with the lead platoon).
- The right flank platoon's primary direction of fire is TRP 3 (right) until otherwise specified; the platoon is responsible for the right two friendly quadrants (overlapping with the lead platoon).
- The center platoon's primary direction of fire is TRP 1 (left) until otherwise specified; the platoon is responsible for the bottom left friendly quadrant (overlapping with the left platoon).
- The trail platoon's primary direction of fire is TRP 3 (right) until otherwise specified; the platoon is responsible for the bottom right friendly quadrant (overlapping with the right platoon).

d. **Avoiding Fratricide.** The direct fire SOP must address the most critical requirement of fratricide avoidance. It must direct subordinate leaders to inform the commander, adjacent elements, and subordinates whenever a friendly force is moving or preparing to move. One technique is to establish a standing weapons control status of WEAPONS TIGHT, which requires positive enemy identification prior to engagement. The SOP must also cover methods for identifying friendly dismounted elements. These techniques include using armbands, medical heat pads, or an IR light source, as well as detonating a smoke grenade of a designated color at the appropriate time. A good tool for minimizing the risk of fratricide in the SBCT antiarmor company is through FBCB2; however, this does not supplant the company commander's responsibility to plan for fratricide avoidance.

Section IV. DIRECT FIRE CONTROL

Acquiring the enemy is a precursor to direct fire engagement. The company commander (or platoon leader) must expect the enemy to use cover and concealed routes effectively when attacking and to make best use of flanking and concealed positions in the defense. As a result, the company (or platoon) may not have the luxury of a fully exposed enemy that can be easily seen. The acquisition of the enemy often depends on visual recognition of subtle indicators such as exposed antennas, reflections from the vision blocks of enemy vehicles, small dust clouds, or smoke from vehicle engines or ATGM or tank fires. Because of the difficulty of target acquisition, the company commander (or platoon leader) must develop surveillance plans to assist the unit in acquiring the enemy.

C-15. FIRE CONTROL MEASURES

Fire control measures provide the means by which the antiarmor company commander (or platoon leader) or his subordinate leaders control direct fires. Application of these concepts, procedures, and techniques assists the unit in acquiring the enemy, focusing fires on him, distributing the effects of the fires, and preventing fratricide. At the same time, no single measure is sufficient to control fires effectively. At company level, fire control measures are effective only if the entire unit has a common understanding of what they mean and how to employ them. Table C-1 lists terrain-based and threat-based fire control measures.

Terrain-Based Fire Control Measures	Threat-Based Fire Control Measures
Target reference point	Fire patterns
Engagement area	Target array
Sector of fire	Engagement priorities
Direction of fire	Weapons ready posture
Terrain-based quadrant	Engagement criteria
Friendly-based quadrant	Weapons control status
Maximum engagement line	Rules of engagement
Restrictive fire line	Weapons safety posture
Final protective line	Engagement techniques

Table C-1. Common fire control measures.

a. **Terrain-Based Fire Control Measures.** The antiarmor company commander (or platoon leader) uses terrain-based fire control measures to focus and control fires on a particular point, line, or area rather than on a specific enemy element. The following paragraphs describe the techniques associated with this type of control measure.

(1) ***Target Reference Point.*** A target reference point is an easily recognizable point on the ground that leaders use to orient friendly forces and to focus and control direct fires. In addition, when TRPs are designated as indirect fire targets, they can be used to call for and adjust indirect fires. Leaders designate TRPs at probable (or known) enemy locations and along likely avenues of approach. These points can be natural or manmade. A TRP can be an established site, such as a hill or a building, or an impromptu feature designated as a TRP on the spot, like a burning enemy vehicle or smoke generated by an artillery round. Ideally, TRPs should be visible in three observation modes (unaided, passive-IR, and thermal) so all forces can identify them. Examples of TRPs include the following features and objects:

- Prominent hill mass.
- Distinctive building.
- Observable enemy position.
- Destroyed vehicle.
- Ground-burst illumination.
- Smoke round.
- Laser point.

(2) ***Engagement Area.*** This fire control measure is an area along an enemy avenue of approach where the company commander (or platoon leader) intends to mass the direct fires of available weapon systems to destroy an enemy force. The size and shape of the EA is determined by the degree of relatively unobstructed visibility available to the unit's weapon systems in their firing positions and by the maximum range of those systems. Typically, company commanders (or platoon leaders) delineate responsibility within the EA by assigning each subordinate unit a sector of fire or direction of fire. These fire control measures are covered in the following paragraphs.

(3) ***Sector of Fire.*** A sector of fire is a defined area that must be covered by direct fire. Leaders assign sectors of fire to subordinate elements, weapon systems, and individual soldiers to ensure coverage of an area of responsibility. They may also limit the sector of fire of an element or weapon system to prevent accidental engagement of an adjacent unit. In assigning sectors of fire, commanders and subordinate leaders consider the number and types of weapon systems available. In addition, they must consider acquisition system type and field of view in determining the width of a sector of fire. For example, while unaided vision has a wide field of view, its ability to detect and identify targets at distant ranges and in limited visibility conditions is restricted. Conversely, most fire control acquisition systems have greater detection and identification ranges than the unaided eye, but their field of view is narrow. Means of designating sectors of fire include the following:

- TRPs.
- Clock direction.
- Terrain-based quadrants.
- Friendly-based quadrants.

(4) ***Direction of Fire.*** A direction of fire is an orientation or point used to assign responsibility for a particular area on the battlefield that must be covered by direct fire. Leaders designate directions of fire for the purpose of acquisition or engagement by subordinate elements, weapon systems, or individual soldiers. Direction of fire is most commonly employed when assigning sectors of fire would be difficult or impossible because of limited time or insufficient reference points. Means of designating a direction of fire include the following:

- Closest TRP.
- Clock direction.
- Cardinal direction.
- Tracer on target.
- IR laser pointer.

(5) ***Quadrants.*** Quadrants are subdivisions of an area created by superimposing imaginary perpendicular axes over the terrain to create four separate areas, or quadrants.

Quadrants can be based on the terrain, on friendly forces, or on the enemy formation. The technique in which quadrants are based on the enemy formation is usually referred to as the "target array" and is covered in threat-based fire control measures (paragraph C-15b). The method of identifying quadrants is established in the unit SOP; however, care must be taken to avoid confusion when quadrants based on terrain, friendly forces, and enemy formations (target array) are used simultaneously.

(a) *Terrain-Based Quadrant.* A terrain-based quadrant entails the use of a TRP, either existing or constructed, to designate the center point of the axes that divide the area into four quadrants. This technique can be employed in both offensive and defensive operations. In the offense, for example, the company commander designates the center of the quadrant by using an existing feature or by creating a reference point (using a ground burst illumination round, a smoke marking round, or a fire ignited by incendiary or tracer rounds). The axes delineating the quadrants run parallel and perpendicular to the direction of movement. In the defense, for example, the company commander designates the center of the quadrant using an existing or constructed TRP. In the examples shown in Figure C-5, quadrants are marked using the letter "Q" and a number (Q1 to Q4); quadrant numbers are in the same relative positions as on military map sheets (from Q1 as the upper left quadrant clockwise to Q4 as the lower left quadrant).

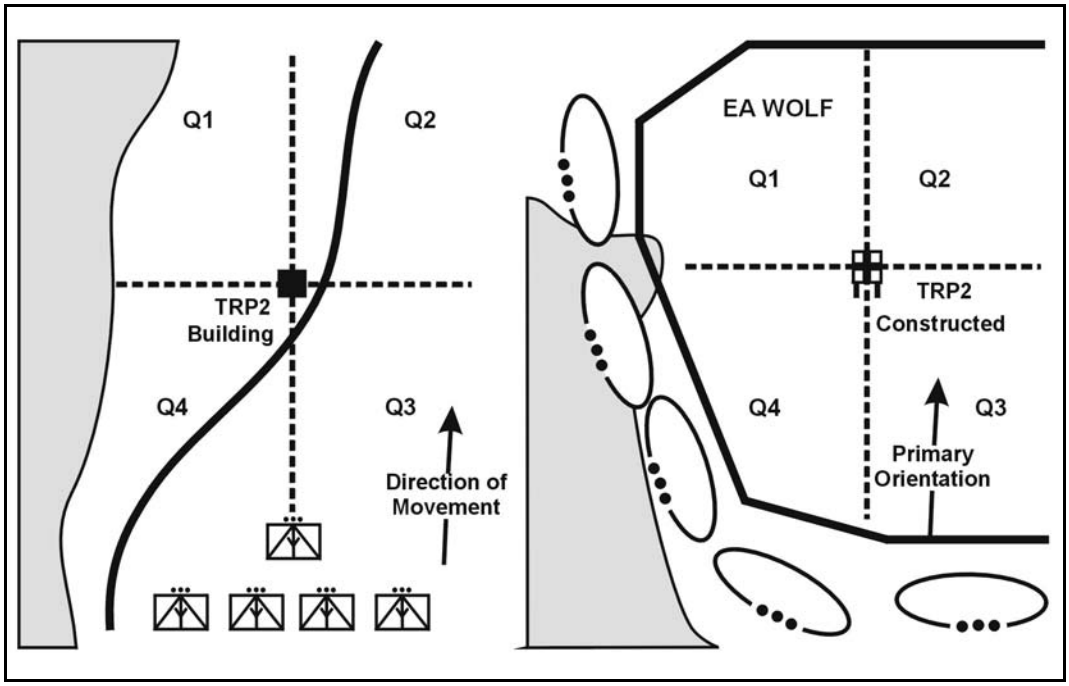

Figure C-5. Examples of terrain-based quadrants.

(b) *Friendly-Based Quadrant.* The friendly-based quadrant technique entails superimposing quadrants over the unit's formation. The center point is based on the center of the formation, and the axes run parallel and perpendicular to the general direction of travel. The friendly quadrant technique may be better than the clock direction method for rapid orientation because the different elements of a large formation are rarely oriented in the same exact direction and because the relative dispersion of friendly forces

causes parallax to the target. Figure C-6 illustrates an antiarmor platoon's use of friendly-based quadrants.

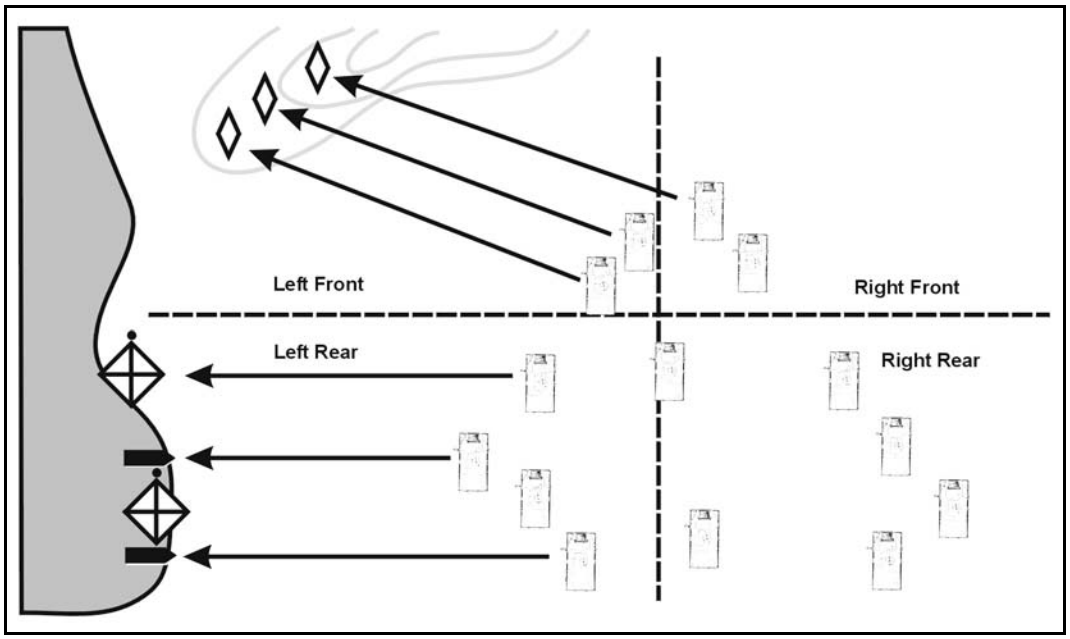

Figure C-6. Example of friendly-based quadrants.

(6) ***Maximum Engagement Line.*** A maximum engagement line is the linear depiction of the farthest limit of effective fire for a weapon system or unit. This line is determined both by the maximum effective range of a weapon or a unit and by the effects of terrain. For example, slope, vegetation, structures, and other features provide cover and concealment that may prevent the weapon from engaging out to the maximum effective range. A MEL serves several purposes. A platoon leader may use it to prevent vehicles (or antiarmor squads) from engaging beyond the maximum effective range of their weapon systems, to define criteria for the establishment of triggers, and to delineate the maximum extent of the sector sketch.

(7) ***Restrictive Fire Line.*** A restrictive fire line is a line established between converging friendly forces (one or both may be moving) that prohibits fires and effects across the line without coordination with the affected force. The higher common commander establishes the RFL. In the offense, for example, an antiarmor company commander may designate an RFL to prevent a base-of-fire force from firing into the area where an assaulting force is maneuvering. This technique is particularly important when an antiarmor unit supports the maneuver of infantry forces. In the defense, for example, an antiarmor company commander may establish an RFL to prevent the unit from engaging an infantry force positioned in restricted terrain on the flank of an enemy avenue of approach.

(8) ***Final Protective Line.*** The final protective line (FPL) is a line of fire established where an enemy assault is to be checked by the interlocking fires of all available weapon systems. The unit reinforces this line with protective obstacles and with FPFs whenever possible. Initiation of the FPF is the signal for elements, antiarmor squads, and individual

soldiers to shift fires to their assigned portion of the FPL. They spare no ammunition in repelling the enemy assault.

b. **Threat-Based Fire Control Measures.** The antiarmor company commander (or platoon leader) uses threat-based fire control measures to focus and control direct fires by directing the unit to engage a specific enemy element rather than to fire on a point or area. The following paragraphs describe the techniques associated with this type of fire control measure.

(1) ***Fire Patterns.*** Fire patterns are a threat-based fire control measure designed to distribute the fires of a unit simultaneously among multiple, similar targets. They are most often used by platoons to distribute fires across an enemy formation. Leaders designate and adjust fire patterns based on terrain and the anticipated enemy formation. The basic fire patterns, illustrated in Figure C-7, are--

- Frontal fire.
- Cross fire.
- Depth fire.

(a) *Frontal Fire.* Leaders may initiate frontal fire when targets are arrayed in front of the unit in a lateral configuration. Weapon systems engage targets to their respective fronts. For example, the left flank weapon engages the left-most target; the right flank weapon engages the right-most target. As the unit destroys targets, weapons shift fires toward the center of the enemy formation and from near to far.

(b) *Cross Fire.* Leaders initiate cross fire when targets are arrayed laterally across the unit's front in a manner that permits diagonal fires at the enemy's flank or when obstructions prevent the unit's weapon systems from firing frontally. Right flank weapons engage the left-most targets; left flank weapons engage the right-most targets. Firing diagonally across an engagement area provides more flank shots, thus increasing the chance of kills; it also reduces the possibility that friendly elements will be detected if the enemy continues to move forward. As the unit destroys targets, weapons shift fires toward the center of the enemy formation.

(c) *Depth Fire.* Leaders initiate depth fire when targets are dispersed in depth, perpendicular to the unit. Center weapons engage the closest targets; flank weapons engage deeper targets. As the unit destroys targets, weapons shift fires toward the center of the enemy formation.

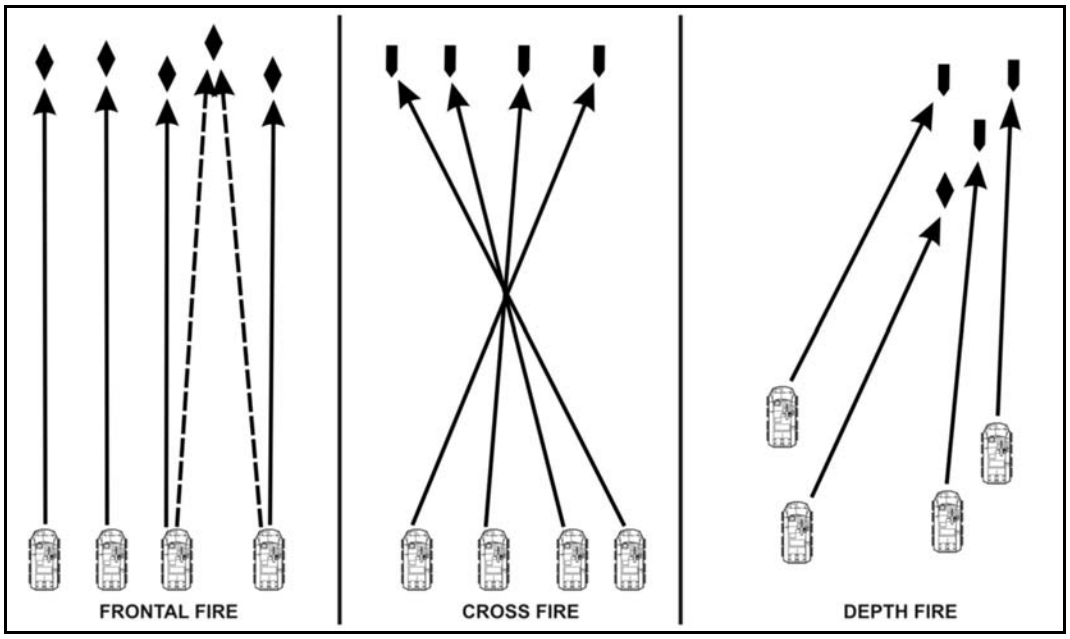

Figure C-7. Examples of fire patterns.

(2) ***Target Array.*** Target array permits the antiarmor company commander (or platoon leader) to distribute direct fires when the enemy force is concentrated and terrain-based controls are inadequate. This threat-based distribution measure is similar to the quadrant method mentioned in terrain-based fire control measures (paragraph C-15a). The company commander (or platoon leader) creates the target array by superimposing a quadrant pattern over an enemy formation. The pattern is centered on the enemy formation, with the axes running parallel and perpendicular to the enemy's direction of travel. Quadrants are described using their relative locations. The examples in Figure C-8, page C-16, illustrate the target array technique.

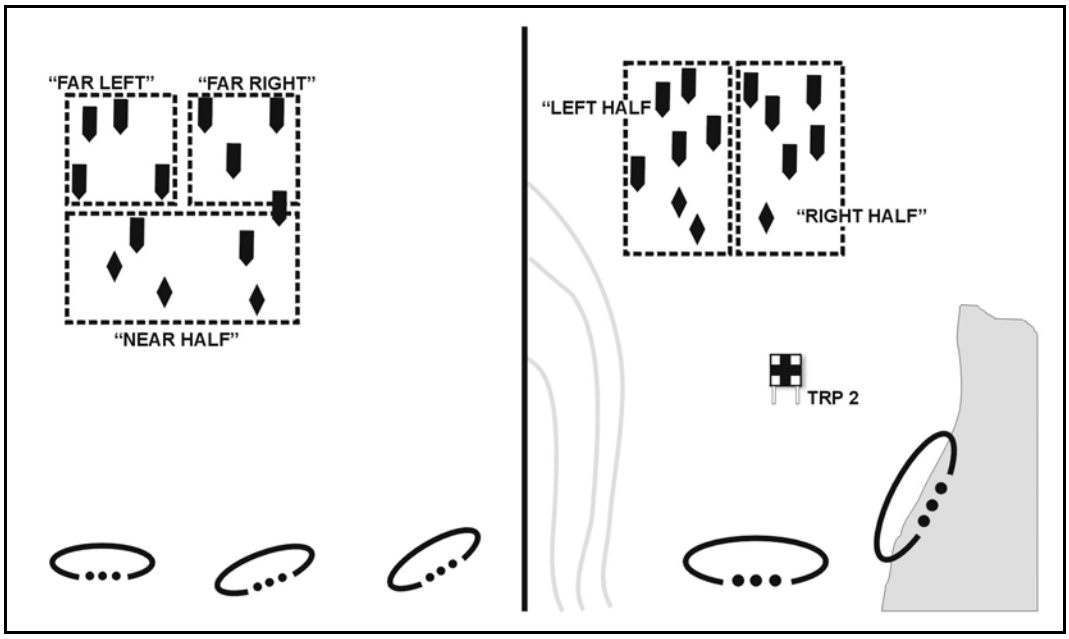

Figure C-8. Examples of target array.

(3) ***Engagement Priorities.*** Engagement priorities entail the sequential ordering of targets to be engaged. They serve one or more of the following critical fire control functions:

(a) *Prioritize Targets.* In concert with his concept of the operation, the company commander (or platoon leader) determines which target types provide the greatest threat to the unit; he can then set these as an engagement priority. For example, he may decide that destroying enemy engineer assets is the best way to prevent the enemy from breaching an obstacle.

(b) *Employ the Best Weapons for the Target.* Establishing engagement priorities for specific friendly weapon systems increases the effectiveness with which the unit employs its weapons. As an example, the engagement priority for the unit's TOWs could be enemy armored vehicles first, then enemy fortifications. This would decrease the chance that the company's MK19s or M2s will need to engage enemy armored vehicles.

(c) *Distribute the Unit's Fires.* Establishing different priorities for similar friendly weapon systems helps to prevent overkill and achieve effective distribution of fires. For example, an antiarmor company commander may designate the enemy fortifications as the initial priority for one platoon while making the enemy vehicles the priority for another platoon. This would decrease the chance of multiple TOWs being fired against two enemy vehicles while ignoring the dangers posed by the fortifications.

(4) ***Weapons Ready Posture.*** The weapons ready posture is a means by which leaders use situational understanding to specify the ammunition and range for the most probable engagement. Ammunition selection depends on the target type, but the leader may adjust it based on engagement priorities, desired effects, and effective range. Range selection depends on the anticipated engagement range and is affected by terrain inter-visibility, weather, and light conditions. Within an antiarmor company, the weapons ready posture affects the types and quantities of ammunition loaded and stowed in ready racks.

(5) ***Engagement Criteria.*** Engagement criteria are a specific set of conditions that specify the circumstances in which subordinate elements are to engage. This is often referred to as a "trigger." The circumstances can be based on a friendly or an enemy event. For example, the engagement criteria for an antiarmor platoon to initiate fires could be three or more enemy combat vehicles passing or crossing a given point or line. This line can be any natural or manmade linear feature, such as a road, ridgeline, or stream. It may also be a line perpendicular to the unit's orientation, delineated by one or more reference points.

(6) ***Weapons Control Status.*** The three weapons control status levels outline the conditions, based on target identification criteria, under which friendly elements may engage. The company commander (or platoon leader) sets and adjusts the WCS based on friendly and enemy disposition and situational understanding. In general, a more restrictive WCS relates to a higher probability of fratricide. The three levels, in descending order of restriction, are--

- WEAPONS HOLD. Engage only if engaged or ordered to engage.
- WEAPONS TIGHT. Engage only targets positively identified as enemy.
- WEAPONS FREE. Engage any targets not positively identified as friendly.

As an example, an antiarmor company commander may establish the WCS as WEAPONS HOLD when friendly forces are conducting a passage of lines. The company commander may be able to set a WEAPONS FREE status when he knows there are no friendly elements in the vicinity of the engagement. This WCS permits his elements to engage targets at extended ranges even though it is difficult to distinguish the targets accurately under battlefield conditions.

(7) ***Rules of Engagement.*** ROE specify the circumstances and limitations under which forces may engage. ROE include definitions of combatant and noncombatant elements and prescribe the treatment of noncombatants. Factors influencing ROE are national command policy, the mission and commander's intent, the operational environment, and the law of war. ROE always recognize a soldier's right of self-defense; at the same time, they clearly define circumstances in which he may fire.

(8) ***Weapons Safety Posture.*** Weapons safety posture is an ammunition handling instruction that allows the antiarmor company commander (or platoon leader) to precisely control the safety of his unit's weapons. Leaders supervise the weapons safety posture and soldier adherence to it, minimizing the risk of accidental discharge and fratricide. Table C-2, page C-18, outlines procedures and considerations for an antiarmor company in using the four weapons safety postures, listed in ascending order of restriction:

- AMMUNITION LOADED.
- AMMUNITION LOCKED.
- AMMUNITION PREPARED.
- WEAPONS CLEARED.

In setting and adjusting the weapons safety posture, the antiarmor company commander must weigh the desire to prevent accidental discharges against the requirement for immediate action based on the enemy threat. If the possibility of direct contact with the enemy is high, for example, he may establish the weapons safety posture as AMMUNITION LOADED. If the requirement for action is less immediate, he may lower the posture to AMMUNITION LOCKED or AMMUNITION PREPARED. Additionally, the antiarmor company commander may designate different weapons safety postures for

different elements of the unit. For example, in the attack position, TOW-equipped platoons may switch to AMMUNITION LOADED while MK19-equipped and M2-equipped platoons remain at AMMUNITION LOCKED.

	TOW WEAPONS AND AMMUNITION	MK19 WEAPONS AND AMMUNITION	M2 WEAPONS AND AMMUNITION
AMMUNITION LOADED	TOW missile loaded in launcher and system self-test completed. Self-defense weapon ammunition on feed tray; bolt locked to rear (ICV only). Smoke grenades in launchers (ICV only). Weapon on safe.	40mm ammunition on MK19 feed tray; bolt locked to rear. Weapon on safe.	Cal .50 ammunition on M2 feed tray; bolt locked to rear. Weapon on safe.
AMMUNITION LOCKED	TOW ammunition loaded in launcher. Self-defense weapon ammunition on feed tray; bolt forward (ICV only). Smoke grenades in launchers (ICV only). Weapon on safe.	40mm ammunition on MK19 feed tray; bolt forward. Weapon on safe.	Cal .50 ammunition on M2 feed tray; bolt forward. Weapon on safe.
AMMUNITION PREPARED	TOW missile ready rack filled. Self-defense weapon ammunition boxes filled (ICV only). Smoke grenades in launchers (ICV only).	40mm ammunition ready boxes filled.	Cal .50 ammunition ready boxes filled.
WEAPONS CLEARED	TOW missile ready rack filled. Self-defense weapon cleared, with bolts locked to the rear (ICV only).	MK19 cleared, with bolt locked to the rear.	M2 cleared, with bolt locked to the rear.

Table C-2. Weapons safety posture levels.

(9) ***Engagement Techniques.*** Engagement techniques are effects-oriented direct fire distribution measures. The following engagement techniques are the most common in antiarmor company (or platoon) operations:

- Point fire.
- Area fire.
- Alternating fire.
- Sequential fire.
- Simultaneous fire.
- Observed fire.
- Time of suppression.
- Reconnaissance by fire.

(a) *Point Fire.* Point fire concentrates the effects of a unit's direct fire against a specific, identified target such as a vehicle, machine gun bunker, or ATGM position. When leaders direct point fire, all of the unit's weapon systems engage the target, firing until it is destroyed or the required time of suppression has expired. Employing converging fires from dispersed positions makes point fire more effective because the target is engaged from multiple directions. The unit may initiate an engagement using

point fire against the most dangerous threat, then revert to area fire against other, less threatening targets.

(b) *Area Fire.* Area fire involves distributing the effects of a unit's direct fires over an area in which enemy positions are numerous or are not obvious. If the area is large, leaders assign sectors of fire to subordinate elements using a terrain-based distribution method such as the quadrant technique. Typically, the primary purpose of the area fire is suppression; however, sustaining effective suppression requires judicious control of the rate of fire.

(c) *Alternating Fire.* In alternating fire, pairs of elements continuously engage the same point or area target one at a time. For example, an antiarmor company may alternate the direct fires of two platoons; an antiarmor platoon may alternate the fires of its sections. Alternating fire permits the unit to maintain suppression for a longer duration than does simultaneous fire. It also forces the enemy to acquire and engage alternating points of fire.

(d) *Sequential Fire.* In sequential fire, the subordinate elements of a unit engage the same point or area target one after another in an arranged sequence. For example, an antiarmor platoon may sequence the fires of its four vehicles to gain maximum time of suppression. Sequential fire can also help prevent the waste of ammunition, as when an antiarmor platoon waits to see the effects of the first rounds of a MK19 fired before firing another. Additionally, sequential fire permits elements that have already fired to pass on information they have learned from the engagement. An example would be an antiarmor squad that missed a BMP with TOW fires passing range and lead information to the next antiarmor squad preparing to engage the BMP with a TOW.

(e) *Simultaneous Fire.* Units employ simultaneous fire, commonly referred to as "volley fire," to rapidly mass the effects of their direct fires or to gain immediate fire superiority. For example, an antiarmor platoon may initiate a support-by-fire operation with simultaneous fire, then change to alternating or sequential fire to maintain effective suppression.

(f) *Observed Fire.* Observed fire is normally used when an antiarmor company is in concealed defensive positions with engagement ranges in excess of 3,000 meters. It can be employed between elements of the company, such as one antiarmor platoon observing while another antiarmor platoon fires, or between vehicles of an antiarmor platoon. The company commander or platoon leader directs an antiarmor element, an attached infantry squad, or a vehicle to engage. The remaining elements or vehicles observe fires and prepare to engage on order in case the engaging element consistently misses its targets, experiences a malfunction, or runs low on ammunition. Observed fire allows for mutual observation and assistance while protecting the location of the observing elements.

(g) *Time of Suppression.* Time of suppression is the period, specified by a commander (or platoon leader), during which an enemy position or force is to be suppressed. Suppression time typically depends on the time it will take the supported element to maneuver. Normally, a unit suppresses an enemy position using the sustained rate of fire of its weapons. In planning for sustained suppression, leaders must consider several factors: the estimated time of suppression, the size of the area being suppressed, the type of enemy force to be suppressed, range to the target, rates of fire, and available ammunition type and quantities.

(h) *Reconnaissance by Fire.* Reconnaissance by fire is the process of engaging possible enemy locations to elicit a tactical response, such as return fire or movement. This response permits a commander and his subordinate leaders to make accurate target acquisition and then to mass direct fires against the enemy element. Typically, an antiarmor company commander directs a platoon to conduct the reconnaissance by fire. For example, he may direct an overwatching platoon to conduct the reconnaissance by fire with M2 or MK19 against a probable enemy position before initiating TOW fires or movement by a bounding force. Reconnaissance by fire should be used only if the commander is unable to gain an accurate understanding of the situation.

C-16. FIRE COMMANDS

Fire commands are oral orders issued by the company commander and his subordinate leaders to focus and distribute direct fires as required to achieve the desired effects against an enemy force. Fire commands allow leaders in the already confusing environment of close combat to articulate their firing instructions rapidly and concisely using a standard format. Unit fire commands include these elements:

- Alert.
- Weapon or ammunition (optional).
- Target description.
- Orientation.
- Range (optional).
- Control (optional).
- Execution.

a. **Alert.** The alert specifies the units that are directed to fire. It does not require the leader initiating the command to identify himself. Examples of the alert element (call signs and code words based on unit SOP) include --

- "GUIDONS" (all subordinate elements).
- "RED" (1st platoon only).

b. **Weapon or Ammunition (Optional).** This element identifies the weapon and ammunition to be employed by the alerted units. Leaders may designate the type and number of rounds to limit expenditure of ammunition. Examples of this element include the following:

- "MK19."
- "ONE ROUND TOW 2B."

c. **Target Description.** Target description designates which enemy forces are to be engaged. Leaders may use the description to focus fires or achieve distribution. Examples of target description include the following:

- "THREE PCs."
- "BUNKER."
- "TROOPS IN TRENCH."

d. **Orientation.** This element identifies the location of the target. There are numerous ways to designate the location of target, including --

- Closest TRP. Example: "TRP 13."
- Clock direction. Example: "ONE O'CLOCK."
- Terrain quadrant. Example: "QUADRANT ONE."

- Friendly quadrant. Example: "LEFT FRONT."
- Target array. Example: "FRONT HALF."
- Laser pointer (if equipped). Example: "ON MY POINTER."

e. **Range (Optional).** The range element identifies the distance to the target. Announcing range is not necessary for systems that have range finders or that employ command-guided or self-guided munitions. For systems that require manual range settings, leaders have a variety of means for determining range, including the following:

- Predetermined ranges to TRPs or phase lines.
- A TOW-equipped platoon announcing the range for an MK19-equipped platoon.
- Handheld range finders.
- Range stadia.
- Mil reticles.

f. **Control (Optional).** The commander may use this optional element to direct desired target effects, distribution methods, or engagement techniques. Subordinate leaders may include the control element to supplement the commander's instructions and achieve effective distribution. Examples of information specified in the control element include the following:

- Target array. Example: "FRONT HALF."
- Fire pattern. Example: "FRONTAL."
- Terrain quadrant. Example: "QUADRANT ONE."
- Engagement priorities. Example: "TOWs ENGAGE PCs; MK19s ENGAGE TROOPS."
- Engagement technique. Example: "ALTERNATING."
- Target effect. Example: "AREA."

g. **Execution.** The execution element specifies when direct fires will be initiated. The commander may engage immediately, delay initiation, or delegate authority to engage. Examples of this element include the following:

- "FIRE."
- "AT MY COMMAND."
- "AT YOUR COMMAND."
- "AT PHASE LINE ORANGE."